Ethnobiology

Bernardo Urbani
Manuel Lizarralde *Editors*

# Neotropical Ethnoprimatology

## Indigenous Peoples' Perceptions of and Interactions with Nonhuman Primates

Springer

# Ethnobiology

Ethnobiology is the study of the dynamic relationship between plants, animals, people, and the environment. Academic and applied interests include ethnobotany, ethnozoology, linguistics, paleoethnobotany, zooarchaeology, ethnoecology, and many others. The field lies at a dynamic intersection between the social and biological sciences. The major contribution from the biological sciences has come from economic botany, which has a rich historical and scientific tradition. Indeed, the objectives of the colonial enterprise were as much about the quest for "green gold" –herbal medicines, spices, novel cultivars, and others—as it was for precious metals and sources of labor. The view that ethnobiology concerns mostly the discovery of new and useful biota extended into the 20th century. The social sciences have contributed to the field in both descriptive studies but also within quantitative approaches in cognitive anthropology that have led to general principles within ethnobiological classification. Ethnobiological research in recent years has focused increasingly on problem solving and hypothesis testing by means of qualitative and especially quantitative methods. It seeks to understand how culturally relevant biotas are cognitively categorized, ranked, named, and assigned meaning. It investigates the complex strategies employed by traditional societies to manage plant and animal taxa, communities, and landscapes. It explores the degree to which local ecological knowledge promotes or undermines resource conservation, and contributes to the solution of global challenges, such as community health, nutrition, and cultural heritage. It investigates the economic value and environmental sustainability to local communities of non-timber forest products, as well as the strategies through which individual ecological knowledge and practices encourage resilience to change—modernization, climate change, and many others. Most importantly, contemporary ethnobiological research is grounded in respect for all cultures, embracing the principles of prior informed consent, benefit sharing, and general mindfulness.

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*To Ana María and Anne Marie, our daughters and son, family, and students…*

*To our fathers, Franco Urbani and Roberto Lizarralde†, lunch companions, and long-lasting friends who shared their impressions of far-away travels in Venezuelan forests throughout the hallways of their* alma mater, *the Universidad Central de Venezuela…*

*To the indigenous peoples of the Neotropics and the nonhuman primates that shared their ancestral lands…*

# Foreword

Since at least 1863, when "Darwin's Bulldog" Thomas Henry Huxley published his classic book *Evidence as to Man's Place in Nature*, primates have been increasingly studied by scientists because they are our closest living relatives in the animal kingdom; our prehistoric ancestors were primates; and we are primates (Kelley and Sussman 2007; Sussman 2007). Ethnoprimatology reveals yet a fourth kind of relevance of primates; humans relate to nonhuman primates in a diversity of fascinating and important ways, especially where there is ecological sympatry which increasingly occurs within the geographical range of most nonhuman primate species.

Linda Wolfe and Agustin Fuentes (2007: 701) define ethnoprimatology as "the study of the multifarious interaction of human and nonhuman primates, including, but not exclusive to, the image of primates in folklore, legends, and myths; influence of cultural beliefs on the hunting of primates; conservation ecology and the management of primate populations in their natural habitats; and so forth." Some would extend ethnoprimatology to even include settings where nonhuman primates are managed by humans, such as zoos (Palmer and Malone 2018). In addition, another special relevance of ethnoprimatology with very practical significance is the bidirectional transmission of parasites and diseases between humans and other primates (e.g., Cormier 2012).

Furthermore, from the perspective of primate conservation, as Phyllis Dolhinow and Agustín Fuentes (1999: 146–147) assert, "biodiversity and conservation-related themes have become a critical part of primate studies. It is no longer possible to study a group or population of free-ranging nonhuman primates without coming into contact with human disturbance, manipulation, or destruction of habitat. It has become readily apparent that no form of conservation action is possible without taking into account the human role in local utilization of protected areas." Human disturbance increasingly includes the impact of global climate change. As the Primate Specialist Group of the International Union for the Conservation of Nature (IUCN) periodically reports, many primate populations are endangered due to increasing human population and economic and ecological pressures (http://www.primate-sg.org/). Indeed, an impending extinction crisis is

recognized, with 60% of primate species threatened (Estrada et al. 2017). Thus, ethnoprimatology is increasingly becoming important (see also Fuentes and Wolfe 2002; Waller 2016).

Ethnoprimatology is also relevant as it challenges several long-established tendencies which can be counterproductive. For decades the ideal of nonhuman primate field studies has been to make unintrusive observations on the undisturbed naturalistic behavior and ecology of free-ranging nonhuman primates in their natural habitat independent of humans, although habituation and sometimes provisioning may be involved. This approach remains essential but impractical because various kinds and degrees of human influences appear to be becoming nearly ubiquitous as part of the Anthropocene. Disregarding the human factor could result in biased and distorted results; accordingly, ethnoprimatology focuses on interrelationships between humans and other primates. It challenges the counterintuitive tendency to view *Homo sapiens* as part of nature in an evolutionary sense, but not in an ecological sense. Ethnoprimatology considers the human population as part of the animal community in an ecosystem and the associated ecological processes. It problematizes persistent ontological dualisms, such as human/animal and culture/nature, replacing them with a relational and processual perspective. It can evaluate the meanings of primate and human (Riley 2018). Finally, ethnoprimatology challenges, transcends, and even integrates the often arbitrary, and sometimes antagonistic, separation of biological and cultural anthropology, as well as anthropology and biology, wherever their interests converge. A holistic approach, mixed-methods biosocial tool kit, and collaborative multidisciplinary team research are often desirable (see Dore et al. 2018; Eben and Helmreich 2010; Mullin 1999; Parathian et al. 2018; Riley 2006, 2013, Robinson and Remis 2018).

Since some ideas about ethnoprimatology were first developed (Sponsel 1997), there has been a rapidly growing impressive accumulation of research on the subject with well over a thousand publications (e.g., McKinney and Dore 2018). In the Neotropics, Loretta A. Cormier (2003) published a pioneering account of the variety of interrelationships between the Guajá foragers and monkeys in the Brazilian Amazon. Literature reviews on ethnoprimatology were made (see Carter and Carter 1999; Urbani 2002, 2005; Cormier 2006; Wolfe and Fuentes 2007; McKinney and Dore 2018; Riley 2018), including comparisons on how different cultures relate to the same kind of monkey (Cormier and Urbani 2008; Urbani and Cormier 2015). Agustín Fuentes and Linda Wolfe (2002) edited a substantial anthology on ethnoprimatology as did James D. Patterson and Janette Wallis (2005). A research guide is even available (Dore et al. 2017). Indeed, by now the amount of literature dealing with ethnoprimatology, in content if not explicitly identified as such, is sufficient to facilitate a whole university course entirely focused on this subject with journal articles, book-length case studies, and anthologies, albeit so far there is no single textbook and no focused journal.

Previously there have been relatively few studies in Neotropical ethnoprimatology, in large part following the anthropocentric assumption that African primates are more relevant because they are closer to human evolution. With this interesting book, the editors, Bernardo Urbani and Manuel Lizarralde, and authors offer a

treasure trove of 18 cases from nine Latin American countries encompassing multiple species of genera, including capuchins, spider monkeys, howlers, night monkeys, sakis, marmosets, squirrel monkeys, tamarins, titi monkeys, uakaris, and wooly monkeys. Importantly, at last many of the authors are Latin Americans. This book is unprecedented as a regional compilation. The wealth of information, analyses, perspectives, and insights in this edited volume should be of particular interest to any primatologist and many biologists, biological and cultural anthropologists, and specialists in human/animal studies and multispecies ethnography. It provides a historical benchmark for all subsequent research in ethnoprimatology in the Neotropics and beyond.

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# Neotropical Ethnoprimatology: An Introduction

Studies on the interconnection between human and nonhuman primates in the Neotropics have been expanding progressively and exponentially since the term *ethnoprimatology* was coined by Leslie E. Sponsel in 1997 after completing anthropological field research among Venezuelan indigenous peoples (e.g., Sponsel 1981) and being a visiting scholar at the Center for Anthropology of the Venezuelan Institute for Scientific Research in Caracas. After 5 years of such disciplinary inauguration, to our knowledge, only two studies mentioned this term explicitly (Cormier 2000; Urbani and Gil 2001). The rise of this primatological branch for the Neotropics started when three chapters published in the book *Primates Face to Face. The Conservation Implications of Human-Nonhuman Primate Interconnections* (2002) edited by Agustín Fuentes and Linda D. Wolfe, emerged (Cormier 2002, Lizarralde 2002, Shepard 2002), and later the hallmark monograph by Cormier (2003) appeared. Prior to this moment, publications devoted fully to Neotropical ethnoprimatology, under Sponsel's definition, were counted around a couple of dozen (see review: Urbani 2002), including the pieces of Castro et al. (1975), Queiroz and Kipnis (1991), Townsend (1995), and Fleck et al. (1999). This novel line of ethnographical and primatological research received limited support, and it was not until a decade passed since 1997 when intellectual paradigms changed and a number of novel ethnoprimatological publications from the tropical Americas were launched (e.g., Voss and Fleck 2011; Stafford 2015; Roncal et al. 2018). Now, by presenting this book, our hope, as editors, is to stimulate further research on ethnoprimatology in this region, engaging new theoretical and methodological questions.

Nevertheless, before, several regional ethnographical works clearly showed that indigenous societies are intrinsically linked to the primates living in their lands in many elements of their culture, such as their cosmology, diet, pets, and specific body adornments (e.g., head- or arm-bands and necklaces with monkey teeth), or the use of skins as shaman pouches and leather for drums. Their bones are used as tools to pierce earlobes in adulthood ceremonies or in looms to make clothing and stems for their tobacco pipes. In some societies, such as the Toba-Qom (Medrano and Suárez, this volume), Lokono, Kari'na, and Warao (Rybka this volume),

monkeys are even believed to predict weather changes or to anticipate rain. Today, this belief of indigenous root is so widespread that current peasants from Central and South America indicate that howler monkeys are howling when rain is coming. Additionally, monkey meat was also considered very important in the diet of indigenous societies in the past according to British explorer Henry Walter Bates or anthropologist Michael J. Harner (1973), who also presented a rich body of images of monkeys and the Jivaro. Another iconic ethnography is the work of the ethnographer Charles Wagley who began his Amazonian research in the late 1930s. He recorded that the Tapirapé of Brazil use sharp monkey bones to pierce the lower lip of males at birth (Wagley 1977). He also highlighted the reference of monkey in socialization in this statement: "When a boy became *churangí* (young adolescent), his behavior was likened to that of a monkey" (Wagley 1977: 1949); thus a common name for boys who are mischievous is *kai*, meaning "monkey" in Tapirapé (Wagley 1977). These are a few of the many examples illustrating how diluted the information about monkeys in the literature on indigenous peoples has become. One might argue that given the own nonindigenous background of past authors had a preference to particularly show the exotic animals of the forests of indigenous societies, such as primates, but actually the literature serves as an empirical evidence of these abundant and rich interactions between indigenous peoples and monkeys in their lands (e.g., Urbani 2005; Cormier 2006). However, most of these publications provided a glimpse of these interactions until the first ethnoprimatological works from the Neotropics emerged as indicated in the first paragraph of this introductory chapter. This volume is the first compilation that provides examples of the richness of these interactions in 25 different indigenous cultures in 10 countries of the tropical regions of the American continent.

This edited volume has a total of 18 chapters (Table 1). They are written by authors of different cultural backgrounds and with multiple perspectives. As can be observed in the table of contents, majority of the chapters are led by Latin American scholars or permanent non-Latin American residents in the region (13/18; 72%), and almost two-thirds of the first authors are women (11/18; 61%). The ethnoprimatological studies presented here referred to indigenous peoples inhabiting their ancestral territories from southern Mexico to northern Argentina (Fig. 1). Again, as can be seen in the table of contents, most of the chapters are based on research conducted in Mexico and Venezuela (three entries each), followed by studies from Guyana, Ecuador, and Peru with two pieces per country and single chapters from Argentina, Bolivia, Brazil, Colombia, and Guatemala. There is also a research on Yanomami ethnoprimatology in their binational territory between Brazil and Venezuela. Indigenous lands with monkey communities of two species in Argentina up to 14 in the Peruvian Amazon are ethnoprimatologically explored, but overall indigenous landscapes in the tropical Americas with multiple cultural and natural challenges are examined in the context of complex human/nonhuman primate interfaces. These chapters provide an exceptional sample of the nearly 500 indigenous societies in the Neotropics interacting with many of the 171 monkey species of the New World (Oviedo et al. 2000; Estrada et al. 2017).

**Table 1** Synopsis of the ethnoprimatological studies present in this edited volume

| # in Fig. 1 | Indigenous society | Linguistic family[a] | Country | Chapter author(s) |
|---|---|---|---|---|
| 1 | Popoluca | Mixe-Zoquean | Mexico | M. Pinto-Marroquin and J. C. Serio-Silva |
| 2 | Maya, Tzeltal/ Chol, Zoque, Totonac, and Creole | Mayan, Mixe-Zoquean, Totonacan, and composite | Mexico | E. Urquiza-Haas, R. I. Ojeda Martínez, and K. Kotrschal |
| 3 | Lacandon Maya | Mayan | Mexico | Y. García del Valle, F. Ruan-Soto, F. Guerrero-Martínez, and F. Reyes-Escutia |
| 4 | Maya-Q'eqchi' | Mayan | Guatemala | M. Rosales-Meda and M. S. Hermes |
| 5 | Tikuna | Tukuna-Juri (Independent) | Colombia | A. Maldonado and S. Waters |
| 6 | Barí | Chibchan | Venezuela | M. Lizarralde |
| 7 | Mapoyo | Kariban | Venezuela | B. Urbani |
| 8 | Jotï | Independent | Venezuela | S. Zent and E. Zent |
| 9 | Yanomami | Yanomaman (Independent) | Brazil and Venezuela | J. P. Boubli, B. Urbani, H. Caballero-Arias, G. H. Shepard Jr., and M. Lizarralde |
| 10 | Waimiri Atroari | Kariban | Brazil | R. R. de Souza-Mazurek and A. C. Bruno |
| 11 | Kari'na, Lokono, and Warao | Kariban/Arawakan (Independent) | Guyana | K. Rybka |
| 12 | Wapishana | Arawakan | Guyana | T. Henfrey |
| 13 | Secoya | Tukanoan | Ecuador | S. de la Torre, P Yépez, and A. Payaguaje |
| 14 | Waorani | Sabala (Independent) | Ecuador | M. Franzen-Levin |
| 15 | Shawi | Kawapanan | Peru | L. González-Saavedra |
| 16 | Wampis (Huambisa) | Jivaroan | Peru | K. Swierk |
| 17 | Tacana | Tacanan | Bolivia | W. R. Townsend, R. B. Wallace, K. Lara-Delgado, and G. Miranda-Chumacero |
| 18 | Qom (Toba) | Guaycuruan | Argentina | C. Medrano and V. Suárez |

[a]Lizarralde (1989) and Oviedo et al. (2000)

The first chapter included in this edited volume studies the relationship between the Popoluca and two primate species (*Alouatta palliata* and *Ateles geoffroyi*) found in Los Tuxtlas, Mexico. Marianna Pinto-Marroquin and Juan Carlos Serio-Silva found that this indigenous society has strong cosmological beliefs and that the Popoluca also use primates as pets and in medical alignments. In general, they suggest that empathy with local monkeys by the Popoluca might promote primate conservation in a highly endangered ecosystem of the Neotropics. Additionally, in


**Fig. 1** Location of the ethnoprimatological studies present in this edited volume (map by M. Lizarralde, after an open-access base map from Wiki Commons)

Mexico, Esmeralda Urquiza-Haas and collaborators provide a provocative approach in ethnoprimatology: the study of mental state attributions. By interviewing participants of multiple ethnical backgrounds (Maya, Tzeltal/Chol, Zoque, Totonac, and Creole) at the Yucatan village of Conhuas, the authors explore the way the villagers attribute moral rights to primates and other animals. In doing so, concepts of emotion and intelligence are studied as they are perceived in howler and spider monkeys. A chapter about the Lacandon people in Chiapas (Mexico), written by

Yasminda García del Valle and collaborators, focuses on the rich interaction of this Mayan culture with two different monkey species (*Alouatta pigra* and *Ateles geoffroyi*), providing a deep perspective from pre-Hispanic times to the present. They show the importance of monkeys through mural painting in caves and pottery art work. In the *Popol Vuh*, a very important sacred Mayan text, the origin of monkeys and other folktales for their cosmological role are well described, where spider monkeys are shown as transcribers and important administrators. The authors also interview the Lacandon about the importance of animals, revealing that monkeys rank 9th and 12th in their cultural significance out of 35 taxa. At the end of their chapter, they explain that monkeys are no longer threatened by hunting since the Lacandon see them as important attractions to tourists as economic incentives to their protection. To conclude the section devoted to ethnoprimatological studies carried out in Mesoamerica, Marleny Rosales-Meda and María Susana Hermes share a stimulating study on the interconnection between the Maya-Q'eqchi' and primates of their ancestral lands in Guatemala. The authors show how tied and long cultural links among the indigenous people, howlers, and spider monkeys are positively affecting primate populations and forest conservation. Rosales-Meda and Hermes encourage decision-makers to inform themselves about the cosmological visions of indigenous societies prior to proposing resolutions regarding biodiversity preservation.

Landing in South America, Angela M. Maldonado and Siân Waters provide current views on the Tikuna ethnoprimatology of Colombia. The authors show that Tikuna insertion into current market economy has changed their relations with the monkeys of their territory. Food taboos on primates diminished, and overexploitation consequently increased. The authors suggest alternatives to generate incomes, such as community-based primate watching. Near the border of Colombia, Manuel Lizarralde provides a novel Barí ethnoprimatological study from the Venezuelan side of the Sierra de Perijá. The author presents extensive ethnoecological information on the plants used by the four primate species that sympatrically live in the Bari's lands. Based on this data, he suggests that Neotropical forests might be labeled as *primatogenic* forests created by human and nonhuman primates.

Also in Venezuela, Bernardo Urbani writes on the Mapoyo, an almost extinct Carib language but living culture. He addresses on perceptions and changes on their relationship with their monkeys. The Mapoyo no longer use the four species of monkeys as their ancestors did, but they remember how they were used in the past. Urbani gathered a rich ethnographic data from colonial time to recent anthropological research provides a robust body of information about monkeys' uses, distribution, ecology, and role in their cosmology. However, this chapter provides evidence on the relationship between the indigenous peoples and their monkeys in the future because of Mapoyo process of cultural changes. Stanford Zent and Egleé Zent, in their chapter, provide a rich ecological "multi-species" ethnography on the Jotï people residing in the Venezuelan Guayana, addressing six different monkey species. They provide a complex text on the cosmological role, as well as food, contributing about one third of all hunted animals. Also, Zent and Zent share a deep knowledge of the Jotï's ecology and taxonomy of their monkeys. For the Jotï, the most impor-

tant primate is the spider monkey, from mythological to subsistence reasons. In Venezuela-Brazil border, Jean P. Boubli and collaborators present a comprehensive literature review on the Yanomami perception and the use of ten species of Amazonian primates, as well as field information from villages of both sides of the border. The interconnections between this indigenous society and monkeys are extensive and involve material culture, hunting, food taboos, cosmology, and the use of monkeys as pets. Hunting practices are increasingly revised within the context of current possible unsustainability of nonhuman primate populations.

Rosélis R. de Souza-Mazurek and Ana Carla Bruno examine the role of primates among the Waimiri Atroari of Brazil. Primates are fundamental subjects in the cosmology of these indigenous people, and three cebid species are preferred in hunting games. Taboos on the consumption of monkeys exist among the Waimiri Atroari. In Guyana, Konrad Rybka makes a linguistic and environmental comparison of three societies, the Lokono, Kari'na, and Warao, in the Moruka River. This research questions how cultures borrowed ethnoecological information in their environmental adaptation in a multiethnic region. Rybka compares the same indigenous societies and their ethnographic literature on regions where they are the dominant and the sole society. According to him, "languages are highly sensitive to environmental pressures" since sympatric monkeys might share names borrowed from other indigenous societies or drop or retain terms for primates "independently of the cultural import of their referents." In another study, also in Guyana, on the Wapishana, Thomas Henfrey makes a comparison between the local ecological knowledge and scientific knowledge. The Wapishana have empirical detailed information of six different diurnal monkeys.

In western Amazonia, Stella de la Torre and coauthors navigate into the realms of Secoya ethnoprimatology of Ecuador. The authors suggest that this indigenous society's knowledge on primates is at risk and that some primate species in the territory of the Secoya are locally extinct as unsustainable activities increased. As suggested by Maldonado and Waters, the authors also advocate for ecologically sustainable sources for economic viability. Also in Ecuador, Margaret Franzen Levin explores the relationship between the Waorani and primates in their communities. Monkeys are frequently used as game species. As hunting continues, large-bodied monkeys are at risk, and spider monkeys are highly vulnerable. From Peru, Luisa González-Saavedra presents information on the Shawi cosmovision about monkeys. She indicates that the Shawi have a close interconnection with a large primate community in their lands, including other four arboreal mammals also classified as "monkeys." González-Saavedra found that by understanding the cosmological origin of monkey species, it is also possible to find the cultural origin of the Shawi themselves. In another chapter also in Peru, Kacper Świerk provides an ethnoprimatological case of the Wampis coexisting with a rich primate community that includes 14 different species. He provides a deep description of the ecology and subsistence of these indigenous people as well as a complex body of Wampis mythologies associated with monkeys. Also, it includes a detailed biogeographical distribution of monkeys that the author was able to learn from the Wampis in a rapid biological assessment of their population in their territory, especially focusing on

the Kampankis mountains where the Peruvian government is planning to establish a national park. However, Świerk points out that the Wampis would like to keep using this ancestral land for their own resources.

Looking at the southern part of the continent, Wendy R. Townsend and colleagues study the hunting practices of the Tacana of Bolivia. Various primates are game species, although spider monkeys are preferred as they are considered to be particularly tasty. The Tacana prefer to travel longer in order to hunt *Ateles chamek* even if other primate taxa are nearby their villages. As this and other monkeys are increasingly important in hunting, as they culturally are, the authors provide quantitative data for potential use in decision-making policies regarding the sustainability of this arboreal mammal group in northern Bolivia. The last chapter by Celeste Medrano and Valentín Suárez (a member of the indigenous society) on the Qom (Toba) of northeastern Argentina is on the cultural and cosmological interpretation of one primate species, the black-and-gold howler monkey. They examine the cultural perception of the Qom of their monkeys from an ontological and interpretative perspective. Also, Medrano and Suárez provide a comprehensive collection of myths in relation to monkeys from the literature.

Interestingly enough is that when M. Lizarralde was starting to write this introduction chapter in Manzano Alto, Merida, Venezuela, after 10 days of silence, he started hearing howler monkeys just half a kilometer from his mother's home. Similarly and at the same time, it occurred to B. Urbani when began to write this piece at a field site in a remaining northern Venezuelan rainforest. Hearing the howler monkeys was a relief to know that they still exist in those mountainous forests. The question we ask as editors is: what could be the eventual fate of monkeys in Neotropical forests? There has already been bad news regarding their disappearance. The Neotropical region holds 171 of the world's primate species, 33.9% of the 504 species known globally (Estrada et al. 2017). However, 36% of primate species are threatened with extinction, and 63% of them have declined due to deforestation, mostly to agriculture and cattle ranching as well as logging, mining, and fossil fuel extraction (Estrada et al. 2017). This volume and many other publications have highlighted that hunting primates has not been sustainable due to increasing human population, low fertility rate for larger monkeys, introduction of western technology, and decrease of indigenous people's territory due to colonization. However, there is also good news. Some indigenous societies, from the Lacandon Maya and Popoluca in Mexico to the Tikuna of Colombia and the Secoya of Ecuador (this volume), have been trying to conserve and protect monkey populations by not hunting them because they know that these monkeys not only play an important role in their ecosystem but could also be an ecotourism attraction in their communities. Hopefully, this is the beginning of a new path toward primate conservation and protection in these forests in the twenty-first century.

We, as humans, are not exempt of a cultural baggage that modulates our perceptions of nature. Looking at our closest relatives empathically and with a culturally driven view enables us to think holistically about the future of human and nonhuman primates alike. Primatologists, historically, have tended to view their discipline as nonhuman primate-centered, and on the contrary, ethnographers, sometimes,

seem to focus mainly, or exclusively, anthropocentrically. Given these realms, ethnoprimatology is actually designated as an opportunity to balance both ways of approaching and socially appropriating our Order. Ethnoprimatology provides an ample understanding of nonhuman primate populations and human societies that are at risk for survival, after crossing into the twenty-first century, in which not only the knowledge about nonhuman primates and other organisms will be lost but also the societies. Figure 2 epitomizes the previous statement. This evocative image represents fragile colored feathers covering a cranium of an endangered woolly monkey (*Brachyteles arachnoides*) made by a member of a possibly extinct Tupi society living in the threatened Atlantic Forest of Brazil. Still, there is time to change the unbalance, and ethnoprimatologists have a fundamental role in this endeavor.

To conclude, we envision this volume as a novel forum for thinking ethnoprimatologically. Therefore, the content of this edited volume provides a wide range of approaches and perspectives that form an excellent collection of cases which mainly


**Fig. 2** Fabaceae seeds fixed with bee wax and feathers on a cranium of *Brachyteles arachnoides* from the Brazilian Atlantic Forest (Piece #1950–41 of the *Collections Mammifères et Oiseaux – Anatomie comparée* at the *Muséum national d'Histoire naturelle de Paris*. Photograph by B. Urbani)

focus on how indigenous societies relate to Neotropical primates and vice versa. We hope that the chapters in this book will serve as a framework for future ethnoprimatological research that, as stated previously, will necessarily need to ask novel theoretical and methodological inquiries as well as to follow multi-faceted approaches.

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# Part I
# Mesoamerica

# Chapter 1
# Perception and Uses of Primates Among Popoluca Indigenous People in Los Tuxtlas, Mexico


**Marianna Pinto-Marroquin and Juan Carlos Serio-Silva**

## 1.1 Introduction

Traditions, symbolic attributes, and religion influence people's perception of primates (Loudon et al. 2006b; Hill and Webber 2010). These perceptions have a direct effect on the attitude of human communities toward primates and impact the survival of these animals (Baker 2013; Hill and Webber 2010). Perception is defined as the personal notion that is held about an entity or phenomenon and is articulated to a collective worldview, which is developed in social, cultural, and historical contexts (Allot 2001; Ceballos-Mago and Chivers 2010). Studying perceptions helps to understand how humans view their environment and how they appreciate the natural environment and the animals; therefore, it helps to understand the attitudes and decisions that are made toward its use and management (Lefebvre 1991; Arizpe et al. 1993; Sotelo et al. 2003; Fernández 2008). It also provides critical information to define viable strategies for the management of ecosystems and to facilitate social participation in conservation (Castillo et al. 2009).

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